

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A method of forming a film on a substrate comprising:
 - (a) positioning the substrate on a non-biased support in a chamber;
 - (b) supplying to the chamber in gaseous or vapour form a silicon-containing organic compound and an oxidising agent in the presence of a plasma to deposit a film on the substrate positioned on the non-biased support; and
 - (c) setting the film such that carbon-containing groups are contained therein, wherein the oxidising agent is oxygen.
2. (cancelled).
3. (previously presented): A method according to claim 1, wherein the silicon-containing organic compound is an alkylsilane.
4. (previously presented): A method according to claim 1, herein the silicon-containing organic compound is a tetraalkylsilane.
5. (cancelled).
6. (previously presented): A method according to claim 1, wherein the silicon-containing organic compound is a methylsilane.

7. (original): A method according to claim 3, wherein the silicon-containing organic compound is cyclohexyldimethoxymethylsilane.
8. (previously presented): A method according to claim 1, wherein the film is deposited on a substrate positioned on a low temperature support.
9. (original): A method according to claim 6, wherein the support is at a temperature between about 0°C to about 60°C.
10. (previously presented): A method according to claim 6 wherein the support is at about 30°C.
11. (previously presented): A method according to claim 1, further comprising providing a plasma during deposition of the film.
12. (previously presented): A method according to claim 1, wherein the set film has a dielectric constant of about 2.55 or less.
13. (previously presented): A method of forming a film on a substrate comprising:
 - (a) positioning the substrate on a non-biased support in a chamber;
 - (b) supplying to the chamber in gaseous or vapour form tetramethylsilane and oxygen in the presence of a plasma to deposit a film on the substrate positioned on the non-biased support in the chamber; and
 - (c) setting the film such that carbon-containing groups are contained therein.
14. (previously presented): A method according to claim 13, further comprising supplying the plasma from an RF power source connected to an electrode opposing the substrate support.

15. (previously presented): A method according to claim 13 wherein the substrate support is at D.C. ground during the application of the plasma.

16. (previously presented): A method as claimed in claim 13 wherein the film is set by exposing it to an H₂ containing plasma without any prior annealing or heating step.

17. (original): A method as claimed in claim 16 wherein the H₂ containing plasma is substantially only a H₂ plasma.

18. (previously presented): A method as claimed in claim 16 wherein the H₂ containing plasma treatment last for between 30 seconds and 30 minutes.

19. (previously presented): A method as claimed in claim 16 wherein the H₂ containing plasma treatment lasts from 1 to 10 minutes.

20. (previously presented): A method as claimed in claim 16 wherein the H₂ containing plasma treatment step lasts no more than 5 minutes.

21. (previously presented): A method as claimed in claim 16 wherein the H₂ containing plasma treatment step lasts no more than 10 minutes.

22. (original): A method as claimed in claim 16 where the hydrogen containing plasma is applied simultaneously with heating.

23. (original): A method as claimed in claim 22 where the substrate is heated to approximately 400°C.

24. (cancelled).

25. (original): A method as claimed in claim 1 where the setting of the film substantially removes water and/or OH peaks from the FTIR spectra of the as deposited film.

26. (currently amended): An apparatus for forming a film on a substrate, the apparatus comprising:

- (a) a non-biased support for the substrate positioned in a chamber;
- (b) means for supplying to the chamber in gaseous or vapour form a silicon-containing organic compound and an oxidising agent in the presence of a plasma to deposit a film on the substrate positioned on the non-biased support; and
- (c) means for setting the film such that carbon-containing groups are contained therein,
wherein the oxidising agent is oxygen.

27. (original): An apparatus according to claim 26, further comprising means for improving the uniformity of the deposition of the film on the substrate.

28. (original): An apparatus according to claim 27, wherein the means for improving the uniformity is arranged around a showerhead.

29. (cancelled).

30. (previously presented): A method as claimed in claim 1, wherein said setting includes annealing the film to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
31. (previously presented): A method as claimed in claim 1, wherein said setting includes subjecting the film to a hydrogen-containing plasma to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
32. (previously presented): A method as claimed in claim 13, wherein said setting includes annealing the film to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
33. (previously presented): A method as claimed in claim 13, wherein said setting includes subjecting the film to a hydrogen-containing plasma to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
34. (previously presented): A method as claimed in claim 26, wherein said setting includes annealing the film to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
35. (previously presented): A method as claimed in claim 26, wherein said setting includes subjecting the film to a hydrogen-containing plasma to remove at least one of H₂O and OH from the film with the carbon-containing groups remaining therein.
36. (previously presented): A method according to claim 1 wherein the substrate support is at D.C. ground during the application of the plasma.

37. (previously presented): A method according to claim 26 wherein the substrate support is at D.C. ground during the application of the plasma.
38. (previously presented): A method according to claim 1, further comprising depositing a resist on the set film and subsequently stripping the resist using oxygen.
39. (previously presented): A method according to claim 38, wherein the film is substantially unaffected by the oxygen used in stripping the resist.
40. (previously presented): A method according to claim 13, further comprising depositing a resist on the set film and subsequently stripping the resist using oxygen.
41. (previously presented): A method according to claim 40, wherein the film is substantially unaffected by the oxygen used in stripping the resist.
42. (previously presented): An apparatus according to claim 26, further comprising means for depositing a resist on the set film and subsequently stripping the resist using oxygen.
43. (previously presented): An apparatus according to claim 42, wherein the film is substantially unaffected by the oxygen used in stripping the resist.